

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) ~~A laser annealing method~~ A method for fabricating a semiconductor device comprising:

crystallizing a semiconductor film over a substrate by a laser beam to obtain a crystalline semiconductor film,

~~irradiating a surface of an irradiation target formed over a substrate with a laser beam,~~

~~wherein the laser beam is directed obliquely to a major plane of the substrate,~~
and

wherein a part of the laser beam transmits through ~~the irradiation target~~ the semiconductor film, and

wherein the incident angle θ satisfies

$\theta \geq \arctan(w / (14 \times D)), (w = (w_1 + w_2) / 2),$

where w_1 indicates a beam width of the laser beam irradiated onto the semiconductor film,

w_2 indicates a beam width of the part of the laser beam at the semiconductor film after reflected by a back surface of the substrate, and

D indicates the thickness of the substrate.

2. (Currently Amended) ~~A laser annealing~~ The method according to claim 1,
~~wherein the laser beam becomes uniform in energy distribution~~ an energy distribution of the laser beam is uniformed by using long focal length cylindrical lenses at or near an irradiation plane.

3. (Currently Amended) ~~A laser annealing method~~ The method according claim 1, wherein the laser beam ~~becomes~~ is linear in shape at or near an irradiation plane, and where linear means a rectangle having a large aspect ratio from 10 to 10000 or an ellipse.

4. (Currently Amended) ~~A laser annealing method~~ The method according to claim 1, wherein ~~the laser beam becomes uniform in energy distribution~~ an energy distribution of the laser beam is uniformed and the laser beam is linear in shape at or near an irradiation plane.

5. (Currently Amended) ~~A laser annealing~~ The method according to claim 1, wherein the laser beam has a wavelength of 350 nm or more.

6. (Currently Amended) ~~A laser annealing~~ The method according to claim 1, wherein the laser beam has a wavelength of 400 nm or more.

7. (Currently Amended) ~~A laser annealing~~ The method according to claim 1, wherein the laser beam is the second harmonic of one kind selected from the group consisting of a YAG laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a ruby laser, an alexandrite layer, a Ti:sapphire layer, and a glass laser.

8. (Original) A laser annealing method comprising:
irradiating a surface of an irradiation target formed over a substrate with a laser beam at an incident angle θ ,
wherein a part of the laser beam transmits through the irradiation target,
wherein the incident angle θ satisfies
 $\theta \geq \arctan(w / (14 \times D))$, ($w = (w_1 + w_2) / 2$),

where w_1 indicates a beam width of the laser beam irradiated onto the irradiation target, w_2 indicates a beam width of the part of the laser beam at the irradiation target after reflected by a back surface of the substrate, and D indicates the thickness of the substrate.

9. (Currently Amended) ~~A-laser-annealing~~ The method according to claim 8, wherein ~~the laser beam becomes uniform in energy distribution~~ an energy distribution of the laser beam is uniformed at or near an irradiation plane.

10. (Currently Amended) ~~A-laser-annealing~~ The method according to claim 8, wherein the laser beam ~~becomes~~ is linear in shape at or near an irradiation plane.

11. (Currently Amended) ~~A-laser-annealing~~ The method according to claim 8, wherein ~~the laser beam becomes uniform in energy distribution and linear in shape~~ an energy distribution of the laser beam is uniformed and the laser beam is linear in shape at or near an irradiation plane.

12. (Currently Amended) ~~A-laser-annealing~~ The method according to claim 8, wherein the laser beam has a wavelength of 350 nm or more.

13. (Currently Amended) ~~A-laser-annealing~~ The method according to claim 8, wherein the laser beam has a wavelength of 400 nm or more.

14. (Currently Amended) ~~A-laser-annealing~~ The method according to claim 8, wherein the laser beam is the second harmonic of one kind selected from the group consisting of a YAG laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a ruby laser, an alexandrite layer, a Ti:sapphire layer and a glass laser.

15. (Original) A laser annealing method comprising:
irradiating a surface of an irradiation target formed over a substrate with a laser beam at an incident angle θ ,
wherein a part of the laser beam transmits through the irradiation target,
wherein the incident angle θ satisfies
 $\theta \geq \arctan(w / (2 \times D))$, ($w = (w_1 + w_2) / 2$),
where w_1 indicates a beam width of the laser beam irradiated onto the irradiation target, w_2 indicates a beam width of the part of the laser beam at the irradiation target after reflected by a back surface of the substrate, and D indicates the thickness of the substrate.

16. (Currently Amended) ~~A laser annealing~~ The method according to claim 15,
~~wherein the laser beam becomes uniform in energy distribution~~ an energy distribution of
the laser beam is uniformed at or near an irradiation plane.

17. (Currently Amended) ~~A laser annealing~~ The method according to claim 15,
~~wherein the laser beam becomes~~ is linear in shape at or near an irradiation plane.

18. (Currently Amended) ~~A laser annealing~~ The method according to claim 15,
~~wherein the laser beam becomes uniform in energy distribution~~ an energy distribution of
the laser beam is uniformed and the laser beam is linear in shape at or near an
irradiation plane.

19. (Currently Amended) ~~A laser annealing~~ The method according to claim 15,
~~wherein the laser beam has a wavelength of 350 nm or more.~~

20. (Currently Amended) ~~A laser annealing~~ The method according to claim 15,
~~wherein the laser beam has a wavelength of 400 nm or more.~~

21. (Currently Amended) ~~A laser annealing~~ The method according to claim 15, wherein the laser beam is the second harmonic of one kind selected from the group consisting of a YAG laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a ruby laser, an alexandrite laser, a Ti:sapphire laser and a glass laser.

22. (Currently Amended) ~~A laser annealing~~ The method ~~comprising:~~ according to claim 8, wherein the laser beam is irradiated obliquely in order to prevent an interfere with a reflected laser beam.

~~irradiating a surface of an irradiation target formed over a substrate with a laser beam in order to prevent an interfere with a reflected laser beam,~~

~~wherein the laser beam is directed obliquely to a major plane of the substrate,~~
and

~~wherein a part of the laser beam transmits through the semiconductor film.~~

23-29. (Cancel)

30. (Currently Amended) A method for fabricating a semiconductor device comprising:

forming a semiconductor film over a substrate; and

crystallizing a semiconductor film by a laser beam to obtain a crystalline semiconductor film,

~~irradiating a surface of the semiconductor film with a laser beam,~~

~~wherein the laser beam is directed obliquely to a major plane of the substrate,~~
and

wherein a part of the laser beam transmits through the semiconductor film, and
wherein the incident angle θ satisfies

$$\theta \geq \arctan(w / (2 \times D)), (w = (w_1 + w_2) / 2),$$

where w_1 indicates a beam width of the laser beam irradiated onto the semiconductor film,

w_2 indicates a beam width of the part of the laser beam at the semiconductor film after reflected by a back surface of the substrate, and

D indicates the thickness of the substrate.

31. (Currently Amended) [[A]] The method according to claim 30, wherein the laser beam becomes uniform in energy distribution an energy distribution of the laser beam is uniformed by using long focal length cylindrical lenses at or near an irradiation plane.

32. (Currently Amended) [[A]] The method according to claim 30, wherein the laser beam becomes is linear in shape.

33. (Currently Amended) [[A]] The method according to claim 30, wherein the laser beam becomes uniform in energy distribution an energy distribution of the laser beam is uniformed by using long focal length cylindrical lenses and the laser beam is linear in shape at or near an irradiation plane.

34. (Currently Amended) [[A]] The method according to claim 30, wherein the laser beam has a wavelength of 350 nm or more.

35. (Currently Amended) [[A]] The method according to claims claim 30, wherein the laser beam has a wavelength of 400 nm or more.

36. (Currently Amended) [[A]] The method according to claim 30, wherein the laser beam is the second harmonic of one kind selected from the group consisting of a

YAG laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a ruby laser, an alexandrite layer, a Ti:sapphire layer and a glass laser.

37. (Currently Amended) [[A]] The method according to ~~claims~~ claim 30, wherein the semiconductor film comprises silicon.

38. (Currently Amended) [[A]] The method according to ~~claims~~ claim 30, wherein the semiconductor device is incorporated into electronic equipment selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player, a digital camera, a front type projector, a rear type projector, a mobile telephone, a mobile book, and a display.

39. (Currently Amended) A method for fabricating a semiconductor device comprising:

forming a semiconductor film over a substrate; and

irradiating a surface of the semiconductor film with a laser beam at an incident angle θ ,

wherein a part of the laser beam transmits through the semiconductor film, and

wherein the incident angle θ satisfies

$$\theta \geq \arctan(w / (14 \times D)), (w = (w_1 + w_2) / 2),$$

where w_1 indicates a beam width of the laser beam irradiated on ~~the irradiation target~~ the semiconductor film, w_2 indicates a beam width of the part of the laser beam at ~~the irradiation target~~ the semiconductor film after reflected by a back surface of the substrate, and D indicates the thickness of the substrate.

40. (Currently Amended) ~~A laser annealing~~ The method according to claim 39, wherein ~~the laser beam becomes uniform in energy distribution~~ an energy distribution of

the laser beam is uniformed by using long focal length cylindrical lenses at or near an irradiation plane.

41. (Currently Amended) ~~A laser annealing~~ The method according to claim 39, wherein the laser beam ~~becomes~~ is linear in shape.

42. (Currently Amended) ~~A laser annealing~~ The method according to claim 39, wherein ~~the laser beam becomes uniform in energy distribution and linear in shape~~ an energy distribution of the laser beam is uniformed by using long focal length cylindrical lenses and the laser beam is linear in shape at or near an irradiation plane.

43. (Currently Amended) ~~A semiconductor device device fabricating~~ The method according to claim 39, wherein the laser beam has a wavelength of 350 nm or more.

44. (Currently Amended) ~~A semiconductor device fabricating~~ The method according to ~~claims~~ claim 39, wherein the laser beam has a wavelength of 400 nm or more.

45. (Currently Amended) ~~A semiconductor device fabricating~~ The method according to claim 39, wherein the laser beam is the second harmonic of one kind selected from the group consisting of a YAG laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a ruby laser, an alexandrite layer, a Ti:sapphire layer and a glass laser.

46. (Currently Amended) ~~[[A]]~~ The method according to ~~claims~~ claim 39, wherein the semiconductor film comprises silicon.

47. (Currently Amended) ~~[[A]]~~ The method according to ~~claims~~ claim 39, wherein the semiconductor device is incorporated into electronic equipment selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player, a digital camera, a front type projector, a rear type projector, a mobile telephone, a mobile book, and a display.

48. (Original) A method for fabricating a semiconductor device comprising:
forming a semiconductor film over a substrate; and
irradiating a surface of the semiconductor film with a laser beam at an incident angle θ ,

wherein a part of the laser beam transmits through the semiconductor film,

wherein the incident angle θ satisfies

— $\theta \geq \arctan(w / (2 \times D)), (w = (w_1 + w_2) / 2),$

where w_1 indicates a beam width of the laser beam irradiated on the semiconductor film, w_2 indicates a beam width of the part of the laser beam at the semiconductor film after reflected by a back surface of the substrate, and D indicates the thickness of the substrate.

49. (Currently Amended) ~~[[A]]~~ The method according to claim 48, wherein ~~the laser beam becomes uniform in energy distribution~~ an energy distribution of the laser beam is uniformed by using long focal length cylindrical lenses at or near an irradiation plane.

50. (Currently Amended) ~~[[A]]~~ The method according to claim 48, wherein the laser beam ~~becomes~~ is linear in shape.

51. (Currently Amended) ~~[[A]]~~ The method according to claim 48, wherein the ~~laser beam becomes uniform in energy distribution and linear in shape~~ an energy

distribution of the laser beam is uniformed by using long focal length cylindrical lenses and the laser beam is linear in shape at or near an irradiation plane.

52. (Currently Amended) ~~[[A]]~~ The method according to claim 48, wherein the laser beam has a wavelength of 350 nm or more.

53. (Currently Amended) ~~[[A]]~~ The method according to ~~claims~~ claim 48, wherein the laser beam has a wavelength of 400 nm or more.

54. (Currently Amended) ~~[[A]]~~ The method according to claim 48, wherein the laser beam is the second harmonic of one kind selected from the group consisting of a YAG laser, a YVO₄ laser, a YLF laser, a YAlO₃ laser, a ruby laser, an alexandrite layer, a Ti:sapphire layer and a glass laser.

55. (Currently Amended) ~~[[A]]~~ The method according to ~~claims~~ claim 48, wherein the semiconductor film is a film containing silicon.

56. (Currently Amended) ~~[[A]]~~ The method according to ~~claims~~ claim 48, wherein the semiconductor device is incorporated into electronic equipment selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a player, a digital camera, a front type projector, a rear type projector, a mobile telephone, a mobile book, and a display.

57. (Currently Amended) A method for fabricating a semiconductor device ~~comprising:~~ according to claim 1, wherein the laser beam is irradiated obliquely in order to prevent an interfere with a reflected laser beam.

~~forming a semiconductor film over a substrate; and~~

~~irradiating a surface of the semiconductor film with a laser beam in order to prevent an interfere with a reflected laser beam,~~
~~wherein the laser beam is directed obliquely to a major plane of the substrate,~~
and
~~wherein a part of the laser beam transmits through the semiconductor film.~~

58-66. (Cancel)

67. (New) A laser annealing method according to claim 15, wherein the laser beam is irradiated obliquely in order to prevent an interfere with a reflected laser beam.

68. (New) A method for fabricating a semiconductor device according to claim 30, wherein the laser beam is irradiated obliquely in order to prevent an interfere with a reflected laser beam.

69. (New) A method for fabricating a semiconductor device according to claim 39, wherein the laser beam is irradiated obliquely in order to prevent an interfere with a reflected laser beam.

70. (New) A method for fabricating a semiconductor device according to claim 48, wherein the laser beam is irradiated obliquely in order to prevent an interfere with a reflected laser beam.